ASSESSING WATER QUALITY IN THE MOBILE RIVER BASIN

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Abstract. In 1991, the U.S. Geological Survey (USGS) began implementation of the National Water-Quality Assessment (NAWQA) Program. The three major objectives of the NAWQA Program are to (1) provide a consistent description of current water-quality conditions for a large part of the Nation's ground- and surface-water resources, (2) describe how water quality is changing with time, and (3) explain the natural and human factors that may affect observed water-quality (Hirsch and others, 1988). Consistent data collection and analysis methods throughout 59 of the Nation's most important river and aquifer systems provide uniform and comparable information to address water-quality concerns at local, regional, and national scales (Leahy and others, 1990). The Mobile River Basin NAWQA study design incorporates surface-water, ecological, and ground-water studies to help understand water-quality conditions and issues affecting the Mobile River Basin.

Major components of these studies include analysis of surface and ground water for selected chemical constituents, measured physical properties, and biological surveys of aquatic organisms and habitats (Gilliom and others, 1995). The surface-water component of the study consists of nine surface-water sites throughout the Mobile River Basin. Water-quality samples will be collected at these sites on a monthly basis and during selected storm events for about 2 years and analyzed for major ions, nutrients, and suspended sediment. In addition, water-quality samples will be collected on a weekly basis during the growing season and analyzed for pesticides at two of those sites. Ecological studies will be conducted at all sites to describe relations between water quality and aquatic biological communities. Components of the biological studies include aquatic and riparian habitat assessments and annual surveys of fish, algal, and benthic invertebrate communities. The ground-water component consists of sampling about 30 shallow domestic wells each in the Valley and Ridge Physiographic Province and the Fall Line Hills District of the Coastal Plain Province. Ground-water samples from these wells will be analyzed for major ions, nutrients, pesticides, trace elements, bacteria, and volatile organic compounds. Additionally, about 30 shallow wells will be drilled in agricultural areas of the Alluvial Floodplain District of the Coastal Plain and in the urban area of Montgomery, Alabama. Ground-water samples from these wells will be analyzed for major ions, nutrients, and pesticides.

LITERATURE CITED

Gilliom, R.J., Alley, W.M., and Gurtz, M.E., 1995, *Design of the National Water-Quality Assessment Program: occurrence and distribution of water-quality conditions*: U.S. Geological Survey Circular 1112, 33 p.

Hirsch, R.M., Alley, W.M., and Wilbur, W.G., 1988, *Concepts for a National Water-Quality Assessment program*: U.S. Geological Survey Circular 1021, 42 p.

Leahy, P.P., Rosenshein, J.S., and Knopman, D.S., 1990, *Implementation plan for the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 90-174, 10 p.